

41. Hypertensive Crisis

Definition

Severe elevation in blood pressure are when diastolic blood pressure (DBP) > 120-130 mmHg.

1. **Hypertensive Emergency:** CNS, Cardiovascular, Kidney involvement.
- Not based on the absolute level of blood pressure.
2. **Hypertensive Urgency:** Diastolic BP > 115 to 120 mg/dl with absence of end-organ damage

History: Headache, fainting, weakness, difficulty with speech, chest pain, shortness of breath.

Physical:

- **Funduscopy:** Arteriolar spasm (focal or diffuse), retinal edema, retinal hemorrhages (superficial and flame-shaped, or deep and punctate), retinal exudates (hard or "cotton wool"), or papilledema
- **Cardiovascular:** Heart failure (ie, rales, elevated JVP, S3) or aortic dissection. A new or increased murmur of mitral regurg. Bruits.
- **Hypertensive encephalopathy:** disorientation, a depressed consciousness Glasscow Scale. Focal deficits, generalized or focal seizures.

Laboratory tests:

- a. CBC microangiopathic hemolytic anemia.
- b. Urinalysis may reveal hematuria or casts.
- c. Elevated BUN and creatinine levels, metabolic acidosis,
- d. Hypokalemia, reflects secondary aldosteronism, in about 50% of patients with hypertensive crisis.
- e. Pressure-induced natriuresis, however, serum sodium levels are usually lower than in those with primary aldosteronism
- f. Head CT if clinical CNS involvement

Etiology:

- Autonomic hyperactivity in presence of Guillain-Barré or other spinal cord syndromes
- Drugs, particularly sympathomimetic agents (eg, cocaine, amphetamines, PCP, LSD)
- Withdrawal from antihypertensive agents (usually centrally acting agents as clonidine)
- Ingestion of tyramine-containing foods, tricyclic MAO, antidepressants, or other sympathomimetics
- Renovascular hypertension
- Parenchymal renal disease (chronic)
- Scleroderma and other collagen vascular diseases
- Preeclampsia, eclampsia
- Pheochromocytoma
- Acute glomerulonephritis
- Head injury
- Renin-secreting or aldosterone-secreting tumor
- Vasculitis

COMMON SEQUELA

Hypertensive encephalopathy
Acute aortic dissection
Acute pulmonary edema with respiratory failure
Acute MI / Unstable angina
Eclampsia
Acute renal failure
Microangiopathic hemolytic anemia

Treatment: Start IV NSS, KVO. Monitor cardiac rhythm.

Goal by JNC-7 is a prompt but gradual reduction of blood pressure.

- 25% reduction of mean arterial pressure in minutes to 2 hours or a reduction to 160/100 mmHg.
- Observation is critical because end-organ ischemia or infarction.

1. **Nitroglycerin.** Start at 10 µg/min (6 ml/hr). Titrate by 10 to 20 µg/min to 400 µg/min until desired effect.
2. **Labetalol** (Normodyne, Trandate). Give by bolus, 20 to 40 mg IV. May repeat in 10 minutes. Usual effective dose is 50 to 200 mg, **or** continuous infusion of 2 mg/min. Avoids reflex tachycardia.
3. **Enalapril** 1.25 to 5.0 mg IV q6h
4. **Nicardipine, Nitroprusside, Phentolamin, Fenoldopam, Hydralazine, Diazoxide**